REMARKS

Applicants have amended claims 13, 14, 15 and 18 to particularly point out and distinctly claim the subject matter which they regard as their invention. Support for amended claim 13 can be found at page 11, lines 3-25, of the Specification. Support for amended claim 14 can be found at page 8, lines 8-10, and page 9, line 11, to page 10, line 13, of the Specification. Support for amended claim15 can be found at page 8, lines 7-10, of the Specification. As to support for amended claim 18, see discussion below.

Claims 13-25 are currently pending in this application. Reconsideration of the application, as amended, is respectfully requested in view of the remarks below.

Rejection under 35 U.S.C. § 112, first paragraph

The Examiner rejected claims 18 and 19 as failing to comply with the written description requirement. See the Office Action, page 2, lines 11-16. Specifically, the Examiner points out that, "[t]he claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is unknown what bubble point pressure is. What property of the membrane does the bubble point pressure measure or characterize?"

Applicants would like to point out that although the term "bubble point pressure" was not expressly defined in the Specification. It is adequately supported by the Specification, and in any event, it is an art recognized term. According to MPEP 2163.07, "[t]he mere inclusion of dictionary or art recognized definitions known at the time of filing an application would not be considered new matter." The Specification states that, "membranes with bubble point pressure sufficiently higher than the applied vacuum are required. A value for the applied vacuum is 10 in. Hg Vac and the bubble point pressures of the membrane are between 36.5 and 40.6 in. Hg." See page 9, lines 12-14, of the Specification. The Specification does not define bubble point pressure. However, it is common knowledge to a person of ordinary skill in the art that the bubble point pressure is an inherent property of the membrane, i.e., it is the differential gas pressure at which, under test conditions, the first stream of gas bubbles is emitted from a

horizontal disc of wetted filter medium or a filter cartridge when immersed in a liquid. A good definition of bubble point pressure is available online at the following website: http://www.filter.com/glossary#B . A copy is attached hereto as "Exhibit A."

The definition on the filter.com website reads as follows:

> Bubble Point Pressure: A test to determine the maximum pore size openings of a filter. The differential gas pressure at which a wetting liquid (usually water) is pushed out of the largest pores and a steady stream of gas bubbles is emitted from a wetted filter under specific test conditions.

For the above reasons, Applicants submit that claims 18 and 19 comply with the written description requirement.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 13-25 as being indefinite on four grounds. See the Office Action, page 2, lines 20-22. Applicants respectfully traverse each of the grounds below:

(1) The Examiner states, "claim 13 is rendered indefinite as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.

...

If the claim is not directed to the explanation described in reference to Fig. 6, then there is a 112, first paragraph issue." See the Office Action page 2, line 23, to page 3, line 13.

Applicants have amended claim 13 to describe the method of optimal ejection velocity determination, thereby completing the gap between steps. Amended claim 13 distinguishes between the ejection pressure and ejection velocity.

The ejection velocity depends on the ejection pressure, the flow resistance through the tubing, and the internal diameter of the nozzle. See page 11, lines 12-14 of the Specification. It varies from one fluid to another depending on the physical characteristics of the fluid such as viscosity. As the graph shown in figure 6 indicates, the ejection velocity for dispensing fluids is based upon both a coefficient of variation and a synthesis support spattering height as a function of the ejection pressure for each fluid. Furthermore, the optimal ejection velocity is the maximal

optimal ejection pressure of all of the fluids in a given experiment. Therefore, amended claim 13 provides an accurate description of the method to determine optimal ejection velocity.

(2) The Examiner has indicated that, "Claim 14 is rendered indefinite since it is unclear what the gas flow rate and pumping rate is being referred to. Is it the gas flow rate by which liquids are being dispenses into the wells or the natural gas flow rate formed by suction of gas through the reaction medium? Is the pumping rate the rate at which the vacuum pump operates or the rate at which liquid drains from the wells? Additionally, it is unclear whether the wells are selected to have a synthesis reaction medium or the wells already have a synthesis reaction medium and is selected to have a gas flow rate less than a pumping rate. It is also unclear how selecting wells with reaction mediums figures into having a gas flow rate less than a pumping rate. It is unclear what the connection or cause and effect relationship is." See the Office Action, page 3, lines 14-22.

Applicants have amended claim 14 to clearly describe gas flow rate and pumping rate. As to the Examiner's query about the reaction medium, the wells have a reaction medium, which includes a synthesis support disposed on a membrane. See page 8, lines 8-10, of the Specification. It is the membrane that is selected to have a bubble point pressure sufficiently higher than the applied vacuum, thereby causing the inert gas flow rate through the reaction well to be lower than the pumping rate of the vacuum assembly of the synthesis apparatus. For a clear and detailed description of this process see page 9, line 11, to page 10, line 13, of the Specification.

(3) Examiner has pointed out that, "Claim 15 is rendered indefinite since it appears that the well is defined by a bore not the well defining a bore." See the Office Action, page 4, lines 1-2.

Applicants have amended claim 15 to correct this error. Support for amended claim 15 can be found at page 8, lines 7-10 of the Specification.

(4) Examiner has indicated that, "Claim 18 is rendered indefinite since the bubble point pressure of the membrane depends on the applied vacuum pressure, which has not been recited. In the instant specification, the applied vacuum pressure of 10 in. Hg yields a membrane bubble point pressure of 36.5-40.6 in. Hg." See the Office Action, page 4, lines 3-6.

The bubble point pressure of the membrane is an inherent property of the membrane, It does not depend on the applied vacuum pressure. The Specification states that, "Membranes with bubble point pressure sufficiently higher than the applied vacuum are required. A value for the applied vacuum is 10 in. Hg and the bubble point pressures of the membrane are between 36.5 and 40.6 in. Hg." See page 9, lines 12-14. Here, the values for applied vacuum pressure and membrane bubble point pressure are provided as an example for choosing membrane bubble point pressures of 36.5 and 40.6 that are higher than the applied vacuum of 10 in. Hg. A dictionary definition of bubble point pressure has been included in the preceeding section and for a detailed description of the relationship between the membrane bubble point pressure and the applied vacuum pressure see page 9, line 11, to page 10, line 13, of the Specification.

Contrary to the Examiner's assertion, Applicants submit that claims 13-25 are definite, for the reasons set forth above.

Rejection under 35 U.S.C. § 102(b)

The Examiner has rejected claims 13 and 14 as being anticipated by "Brennan."

Applicants provide a copy of claims 13 and 14 here for ease in reference.

Claim 13 reads, "A method of conducting parallel chemical synthesis comprising: determining an optimal ejection velocity for dispensing fluids through a supply assembly into reaction wells of a synthesis apparatus by measuring a set of coefficients of variation and a set of synthesis support spattering heights for each of the fluids as a function of ejection pressure to derive an optimal ejection pressure at which both reagent accumulation and synthesis support spattering height are minimized for dispensing the fluid, the maximal optimal ejection pressure of all of the fluids defining the optimal ejection velocity for dispensing fluids."

Claim 14 reads, "The method of claim 13, wherein the reaction wells each have a synthesis reaction medium which includes a synthesis support disposed on a membrane through which reagents are drained with a gas flow rate lower than a pumping rate, where the gas flow rate is the rate at which an inert gas passes through the reaction wells and the pumping rate is the rate at which the pumping assembly of the synthesis apparatus operates."

Examiner has pointed out that,

"Brennan discloses an apparatus and method for polymer synthesis using arrays (abstract). Brennan discloses that there are two important concerns in liquid

> reagent delivery through nozzles: 1) how to eject a droplet cleanly so that a drop is not left hanging on the end of the nozzle, which corresponds to the coefficient of variation as disclosed in the instant specification; and 2) how to keep the contents of the reaction chamber from splashing when the stream of reagent is delivered into the well, which corresponds to the synthesis support s[p,c]attering height as disclosed in the instant specification (col. 7, lines 27-32)."

See the Office Action, page 4, lines 15-21.

Brennan teaches that for liquid reagent delivery through nozzles, ejecting a droplet cleanly, and keeping the contents of the reaction chamber from splashing when a reagent is delivered into the well are important concerns. It also teaches that the ejection velocity must be sufficient to induce mixing of the reagents. It further teaches the comparative effects of ejection velocity and droplet size on reagent delivery, the effect delivery pressure and dimensions of the capillary tube have on the flow rate of liquids. It emphasizes that all the above variables must be considered when developing delivery pressure and nozzle configuration to cleanly expel reagents. Finally, Brennan teaches that depending on the liquid reagent, it may be more beneficial to dispense it in a continuous stream, a series of pulses or in droplet form. See column 7, lines 27-53. Clearly, to solve the issues of clean droplet ejection and to prevent the contents of the reaction chamber from splashing Brennan teaches dispensing reagents in a continuous stream, in a series of pulses or in droplet form. It does not teach a method to determine an optimal ejection velocity for dispensing fluids by measuring (i) a set of coefficients of variation of and (ii) a set of synthesis support spattering heights, as required by claim 13. In fact, there is no mention of these two important variables in "Brennan." Hence, claim 13 is novel and not anticipated by Brennan's teachings.

As claim 13 is not anticipated by "Brennan," neither is claim 14 which depends from claim13. Thus, amended claims 13 and 14 are clearly patentable.

Rejection under 35 U.S.C. § 103

Examiner has rejected claims 15-19 and 23-25 as being unpatentable over Brennan in view of Pham, and claims 20-22 as being unpatentable over Brennan.

As described above, Brennan does not disclose the two important variables required by claim 13 and therefore does not anticipate claim 13. As a matter of fact, Brennan does not

suggest these two variables and neither does Pham. Thus, claim 13 is not rendered obvious by Brennan and Pham taken alone or in combination. Neither are claims 15-25, all of which depend from claim 13 either directly or indirectly. Thus, claims 15-25 are clearly patentable over the prior art realied on by the Examiner.

CONCLUSION

Applicants submit that the grounds for rejection asserted by the Examiner have been overcome, and that claims 13-25 as pending, define subject matter that is novel and non-obvious. On this basis, it is submitted that all claims are now in condition for allowance, an action of which is requested.

Enclosed is a Enter $ amount check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney's Docket No. 08919-061001.

Respectfully submitted,

Date: 8-13-04

Y. Rocky Tsao

Y. Rocky Tsao, Ph.D., J.D.
Attorney for Applicants
Reg. No. 34,053

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

through introduction of bacteria.

ASSAY:
Analytical procedure to determine purity or concentration of a specific substance in

AUTOCLAVE(ING):
A chamber for sterilizing with saturated steam filters or equipment by using constar temperature and pressure (121°C, 15 psi). One method of ("terminal") sterilization u saturated steam.

BACKPRESSURE:
A backward surge of pressure from downstream to upstream of the filter. Can be th closing a valve or air entrapped in a liquid system.

BACKWASH:
Reversal of a fluid flow through the filtration media, as an attempt to clean or "reger

BACTERIA:
Free living simple celled, microscopic organisms having a cell wall and characterist round, rod-like, spiral or filamentous); lack a defined nucleus.

BACTERIAL CHALLENGE:
Term used when testing the bacterial retention of a filter.

BAR:
A unit of pressure. One bar = 14.5 psi.

BETA RATIO:
Measurement of filter retention efficiency. Ratio of particles exposed to a filter (as fe particles present in the filtrate.

BIOBURDEN:
The load or level of microorganisms in a substance to be filtered.

BIOHAZARD:
Biological refuse, possibly pathogenic in nature.

BIOSAFETY:
Biological safety or non-toxicity of a substance to a living organism by passing tests the United States Pharmocopeia. Analogous to "chemically inert." For filters used in and health care application, Plastic Class-VI tests apply, which include Systemic In Intracutaneous and Implantation Tests.

BROWNIAN MOTION:
The continuous zig-zag motion of suspended minuscule particles. The motion is ca impact of the molecules of the fluid upon the particles.

BUBBLE POINT PRESSURE:
A test to determine the maximum pore size openings of a filter. The differential gas which a wetting liquid (usually water) is pushed out of the largest pores and a steac gas bubbles is emitted from a wetted filter under specific test conditions. Used as fi test with specific, validated, pressure values for specific pore-size (and type) filters.

BUNA-N:
A Nitrile rubber seal compound. This is a generic term covering many formulations.

CAKE:
Solids deposited on the filter media.

CATHODE: